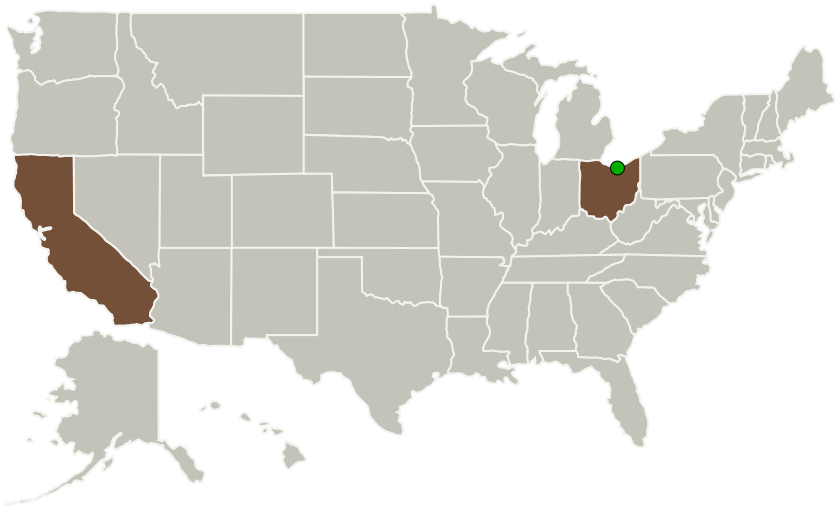
High Performance Configurable Electrical Power System for LEO Missions, Phase I

Completed Technology Project (2016 - 2016)

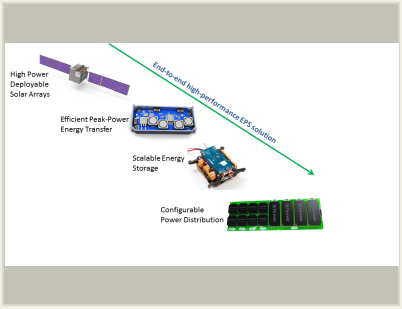
Project Introduction

Leveraging Tyvak personnel?s extensive experience in end-to-end technology development cycles, we propose to design, fabricate and qualify an EPS system targeting 50 to 100W orbit average power. Fitting within a 6U or smaller envelope, this fault-tolerant electrical power system will integrate mission-configurable deployable solar arrays; ultra-efficient, low-noise peak power energy transfer circuitry; high capacity, high cycle and high power capable energy storage; and high-efficiency power regulation & distribution circuitry. The Phase-I Option of this effort will involve the design and analysis of these systems adhering to a development philosophy of modularity, scalability and testability.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Tyvak Nano-Satellite Systems Inc.	Lead Organization	Industry	Irvine, California
Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio



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Primary U.S. Work Locations	
California	Ohio

Project Transitions

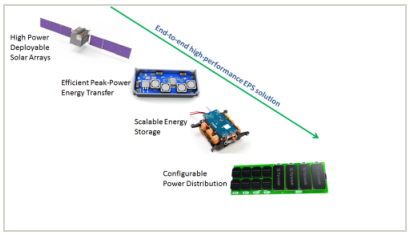
June 2016: Project Start

December 2016: Closed out

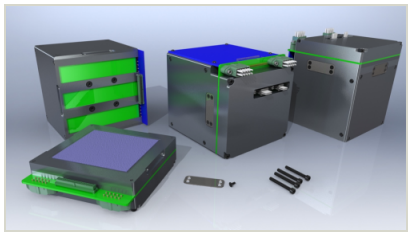
Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139869)*

Images



Briefing Chart Image
High Performance Configurable Electrical Power System for LEO Missions, Phase I
(https://techport.nasa.gov/image/134538)



Final Summary Chart Image
High Performance Configurable Electrical Power System for LEO Missions, Phase I Project Image
(https://techport.nasa.gov/image/131640)

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Tyvak Nano-Satellite Systems Inc.

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

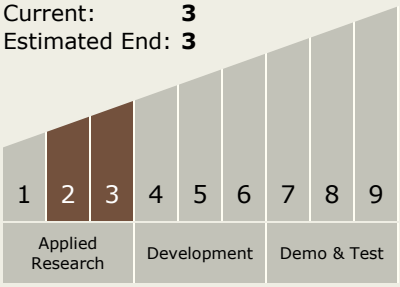
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
John Abel

Technology Maturity (TRL)

Start: **2**
Current: **3**
Estimated End: **3**



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Completed Technology Project (2016 - 2016)

Technology Areas

Primary:

- TX03 Aerospace Power and Energy Storage
  - TX03.3 Power Management and Distribution
    - TX03.3.3 Electrical Power Conversion and Regulation

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System